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1958 Agreement:
Proposal for amendments to the Consolidated Resolution on the common specification of light source categories (R.E.5)

Proposal for Amendment 2 to the Consolidated Resolution on the common specification of light source categories (R.E.5)

Submitted by the Working Party on Lighting and Light-Signalling*

Revision 1**

The text reproduced below was adopted by the Working Party on Lighting and Light-Signalling (GRE) at its seventy-eighth session (ECE/TRANS/WP.29/GRE/78, para. 20). It is based on ECE/TRANS/WP.29/GRE/2017/16. It is submitted to the World Forum for Harmonization of Vehicle Regulations (WP.29) for consideration at its March 2018 session. This proposal is submitted in a package with the proposal for Supplement 7 to Regulation No. 128 (ECE/TRANS/WP.29/2018/30) and should come into force on the same date.

* In accordance with the programme of work of the Inland Transport Committee for 2016–2017 (ECE/TRANS/254, para. 159 and ECE/TRANS/2016/28/Add.1, cluster 3.1), the World Forum will develop, harmonize and update Regulations in order to enhance the performance of vehicles. The present document is submitted in conformity with that mandate.

** Revision 1 corrects minor inaccuracies in formatting of text boxes on some drawings.

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Amendment 2 to the Consolidated Resolution on the common specification of light source categories (R.E.5)

The Status table, insert a new row at the bottom to read:

"

[3]	[2018-xx-xx]	[174]	[ECE/TRANS/WP.29/2018/xx]	Introduction of new light emitting diode (LED) forward lighting light source categories L1A/6 and L1B/6 as a package with Supplement [7] to Regulation No.128

"

Insert a new paragraph 2.5., to read:

"2.5. Thermal characteristics

2.5.1. Thermal point T_b means an optional point on the base of an LED light source of which the temperature is stabilised during photometric measurements."

Paragraph 3.3., group 1, amend to read:

"

Group 1			
LED light source categories without general restrictions:			
Category		*Sheet number(s)*	
L1A/6		L1/1 to 5	
L1B/6		L1/1 to 5	

"

Paragraph 3.3., group 2, amend to read:

"

Group 2			
LED light source categories only for use in signalling lamps, cornering lamps, reversing lamps and rear registration plate lamps:			
Category		*Sheet number(s)*	
LR1		LR1/1 to 5	
LW2		LW2/1 to 5	
LR3A		Lx3/1 to 6	
LR3B		Lx3/1 to 6	
LW3A		Lx3/1 to 6	
LW3B		Lx3/1 to 6	
LY3A		Lx3/1 to 6	
LY3B		Lx3/1 to 6	
LR4A		LR4/1 to 5	
LR4B		LR4/1 to 5	

Group 2			
LED light source categories only for use in signalling lamps, cornering lamps, reversing lamps and rear registration plate lamps:			
	Category		*Sheet number(s)*
	LR5A		Lx5/1 to 6
	LR5B		Lx5/1 to 6
	LW5A		Lx5/1 to 6
	LW5B		Lx5/1 to 6
	LY5A		Lx5/1 to 6
	LY5B		Lx5/1 to 6

"

Annex 3,

List of sheets for LED light sources and their sequence, amend to read:

"

Sheet number(s)
L1/1 to 5
LR1/1 to 5
LW2/1 to 5
Lx3/1 to 6
LR4/1 to 5
Lx5/1 to 6

"

Sheets L3/1 to 6, renumber as sheets Lx3/1 to 6.

Sheet L3/1, bottom left, amend to read:

"For the notes see sheet Lx3/2."

Sheets L5/1 to 6, renumber as sheets Lx5/1 to 6.

Before sheet LR1/1, insert new sheets L1/1 to 5, to read (see the following pages; one page per sheet):

" **Category L1A/6, L1B/6** **Sheet L1/1**

The drawings are intended only to illustrate the essential dimensions (in mm) of the LED light source

Projection method:

Figure 1***
Main Drawing, L1A/6

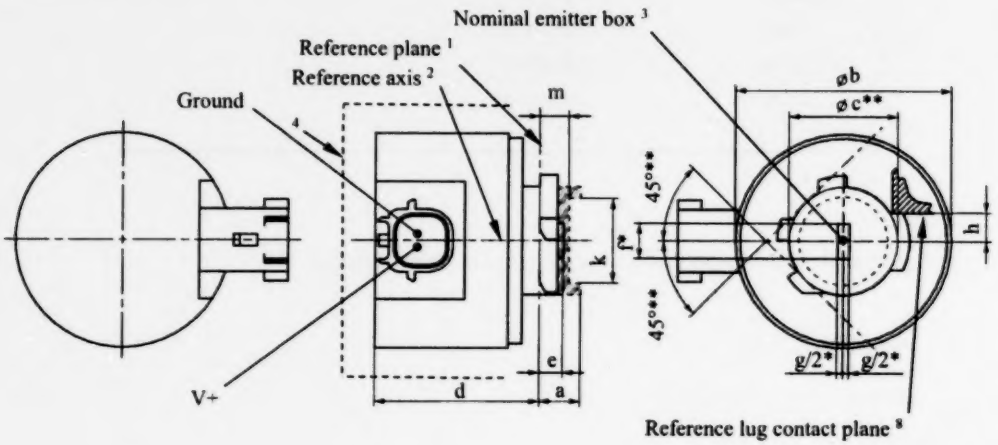
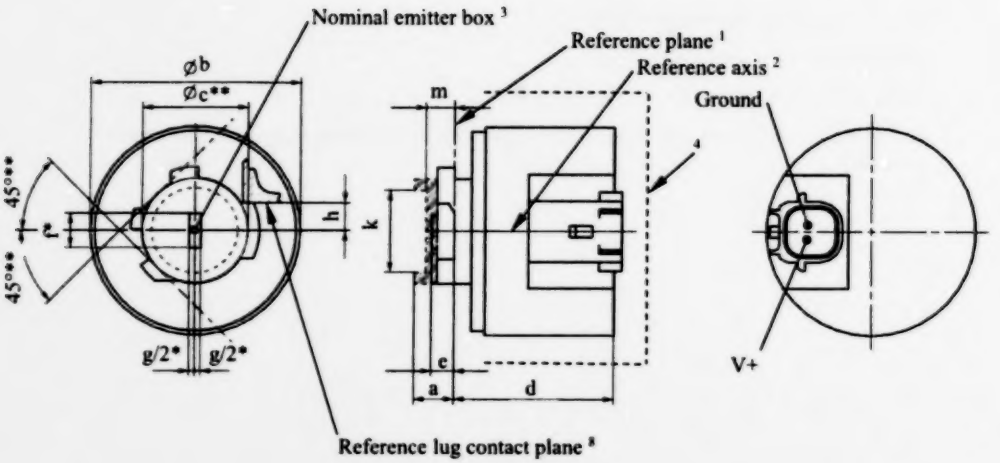


Figure 2***
Main Drawing, L1B/6



* Dimensions f and g see table 2.
** Reference system for the emitter box: for detailed dimensions see relevant cap data sheet.
*** For the notes see sheet L1/2.

Table 1

Essential electrical and photometric characteristics of the LED light source

Dimensions				*Production LED light sources*	*Standard LED light sources*
a			mm	6.0 max.	
b			mm	c + 10.0 min. 38.0 max.	
c			mm	18.60	
d			mm	28.0 max.	
e			mm	3.00 ± 0.30	3.00 ± 0.10
h[8]			mm	4.88	
k[9]			mm	7 min.	
m[9]			mm	4.5 max.	
Cap PGJ18.5d-29 in accordance with IEC Publication 60061 (sheet 7004-185-[2]) [10]					
Electrical and photometric characteristics[5]					
Rated Values	Voltage (in Volts)			12	
	Power (in Watts)			4.0	
Objective values [6]	Power (in Watts)	at 13.2V DC		6.0 max	
		at 13.5V DC		6.0 max	
	Luminous Flux (in lumen)	at 13.2V DC		350 ± 20%	350 ± 10%[7]
		at 13.5V DC		355 ± 20%	355 ± 10%
	Luminous Flux (in lumen)	at 9V DC		70 min.	
Characteristics of the light-emitting area					
Contrast				200 min.	200 min. 400 max.
Size of light emitting area in relation to size of nominal emitter box [3]				75% min.	75% min.
Uniformity R_{01} – surface ratio with luminance exceeding 10% of average luminance				75% min.	85% min.
Uniformity R_{07} – surface ratio with luminance exceeding 70% of average luminance				55% min.	65% min.
Specific thermal test condition:					
Maximum test temperature				65 °C	65 °C

Notes:

[1] The reference plane is defined on the cap and holder fit system according the IEC Publication 60061.

[2] The reference axis is perpendicular to the reference plane and concentric with the reference diameter c of the cap, intended passing through the centre of the nominal emitter box in figure 3.

[3] To be checked by means of the box system in Figure 3.

[4] A minimum free air space of 5 mm around the light source shall be respected for convection; the connector interface can be neglected.

[5] The emitted light shall be white.

[6] After continuous operation for 30 minutes at 23 ± 2.5 °C.

[7] The measured value shall be in between 100 per cent and 90 per cent of the value measured after 1 minute.

[8] The Light source shall be rotated in the (measuring) holder until the reference lug contacts the plane as defined with dimension h from the (measuring) holder.

[9] The bounded area defined with the dimensions c, k and m defines the maximum outline in relation to the reference system.

[10] LED light source L1A/6 shall be equipped with the right-angle cap and LED light source L1B/6 with the straight cap.

Electrical characteristics, failure condition behaviour:

In case of LED light source failure (no light emitted) the maximum electrical current draw, when operated between 12 V and 14 V, shall be less than 20 mA (open circuit condition).

Screen projection requirements:

The following test is intended to define the requirements for the light emitting area of the LED light source and to determine whether the light emitting area is correctly positioned relative to the reference axis and reference plane in order to check compliance with the requirements.

The position, the contrast and the uniformity of the light emitting area are checked by the nominal emitter box system defined in figure 3, which shows the projection when viewing along direction of the reference axis (Gamma = 0°) as defined in Figure 4.

Figure 3

Definition of the nominal emitter box with dimensions as specified in table 2

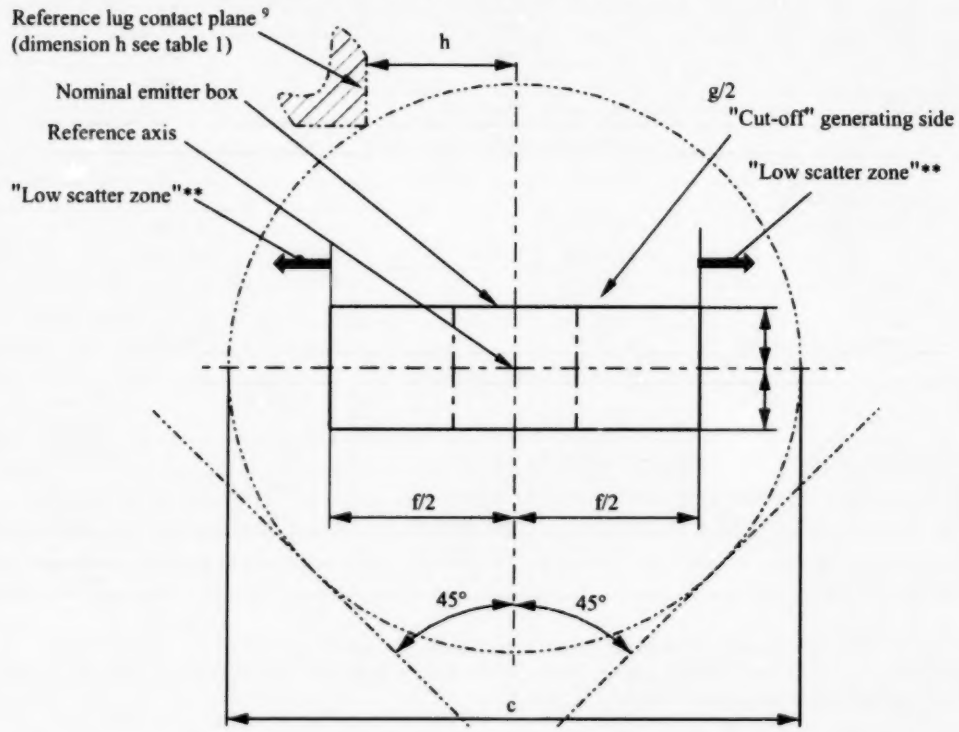


Table 2

Dimensions of the nominal emitter box in Figure 3

Dimensions		f	g
	mm	4.0	1.4
Number of equidistant subdivision to control deviation of luminance		3	2

** The value of the maximum luminance in the "low scatter zone" expressed as a percentage of the average luminance of the light emitting area shall be not higher than 10 per cent.

Normalized luminous intensity distribution:

The following test is intended to determine the normalized luminous intensity distribution of the light source in an arbitrary plane containing the reference axis. The intersection of the reference axis and the upper edge of the box is used as the coordinate system origin.

The light source is mounted on a flat plate with the corresponding mounting lug features. The plate is mounted to the goniometer table by a bracket, so that the reference axis of the light set- up is described in Figure 4.

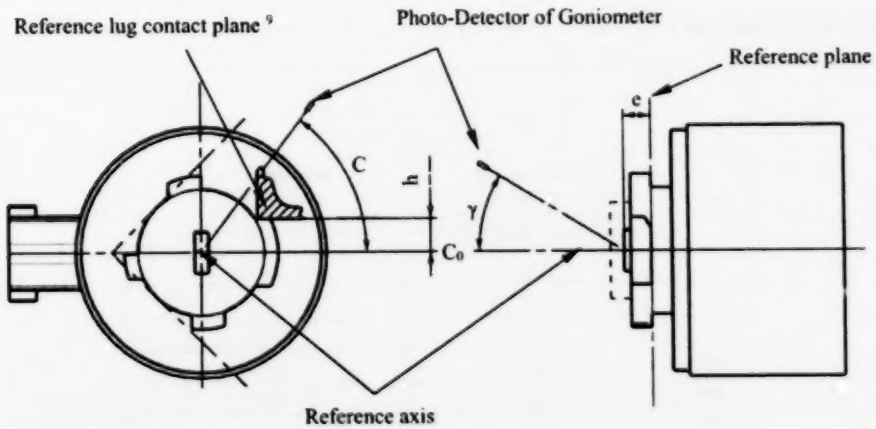
Luminous intensity data is recorded for the major function with a standard photo-goniometer. The measurement distance should be chosen appropriately, to make sure that the detector is located in the far field of the light distribution.

The measurements shall be performed in C-planes C_0, C_{90}, C_{180} and C_{270}, which contain the reference axis of the light source. The test points for each plane for multiple polar angles γ are specified in Table 3.

After measurement the data shall be normalized to 1000 lm according to Paragraph 3.1.11 using the luminous flux of the individual light source under test. The data shall comply with the tolerance band as defined in Table 3.

The drawings are intended only to illustrate the essential set-up for measurement of the LED light source

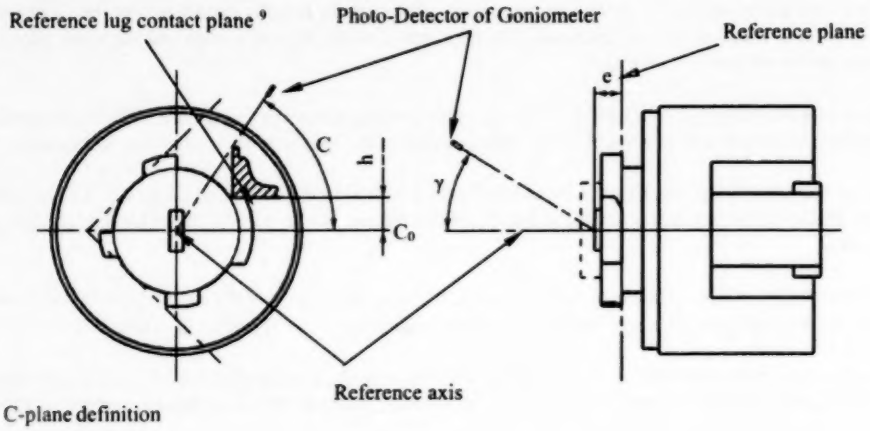
Figure 4
Set-up to measure the luminous intensity distribution for L1A/6



C-plane definition

Figure 5

Set-up to measure the luminous intensity distribution for L1B/6



The light pattern as described in Table 4 shall be substantially uniform, i.e. in between two adjacent grid points the relative luminous intensity requirement is calculated by linear interpolation using the two adjacent grid points. In case of doubt this may be checked in addition to verification of the grid points given in table 4.

Table 3

Test point values of normalized intensities of normal production and standard lamps, respectively

	LED Light sources of normal production and Standard LED light sources	
Angle γ	*Minimum Intensity in cd/1000 lm*	*Maximum intensity in cd/1000 lm*
	C0° / C90° / C180° / C270°	*C0° / C90° / C180° / C270°*
0°	266	389
15°	257	376
30°	228	339
45°	183	281
60°	123	205
70°	70	149
75°	40	116
80°	0	84
90°	0	21

"